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For: SMART CULTURE VESSEL

1 1. A smart culture vessel for holding a sample to be tested in a culture
2 medium comprising:

3 a bio-sensor, in the vessel in the culture medium with the sample
4 having a coating for attracting at least one pathogen expected in the sample; and
5 a detection circuit responsive to the bio-sensor for indicating the
6 presence of a pathogen on the bio-sensor.

1 2. The smart culture vessel of claim 1 in which the bio-sensor includes an
2 array of bio-sensor elements.

1 3. The smart culture vessel of claim 2 in which each bio-sensor element has a
2 different coating for attracting pathogens.

1 4. The smart culture vessel of claim 1 in which the detection circuit drives
2 the bio-sensor over a range of predetermined frequencies and detects a shift in frequency
3 over time due to the attached pathogen.

1 5. The smart culture vessel of claim 1 in which the detection circuit is
2 external to the vessel.

1 6. The smart culture vessel of claim 4 in which the range of predetermined
2 frequencies is near the resonant frequency of the bio-sensor.

1 7. The smart culture vessel of claim 1 in which the detection circuit drives
2 the bio-sensor at a predetermined frequency and detects a shift in frequency due to the
3 attached pathogen.

1 8. The smart culture vessel of claim 7 in which the predetermined frequency is
2 the resonant frequency of the bio-sensor.

1 9. The smart culture vessel of claim 6 in which the shift in frequency is a shift
2 in the resonant frequency of the bio-sensor.

1 10. The smart culture vessel of claim 8 in which the shift in frequency is a shift
2 in the resonant frequency of the bio-sensor.

1 11. The smart culture vessel of claim 1 in which the detection circuit
2 continuously drives the bio-sensor over a range of predetermined frequencies and detects
3 a shift in frequency over time due to the attached pathogen.

1 12. The smart culture vessel of claim 1 in which the detection circuit drives
2 the bio-sensor over a range of predetermined frequencies and instantaneously detects a
3 shift in resonant frequency due to the attached pathogen.

1 13. The smart culture vessel of claim 1 in which the detection circuit
2 continuously drives the bio-sensor at its resonant frequency and detects a shift in
3 frequency due to the attached pathogen.

1 14. The smart culture vessel of claim 1 in which the detection circuit drives
2 the bio-sensor at its resonant frequency and instantaneously detects a shift in frequency
3 due to the attached pathogen.

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